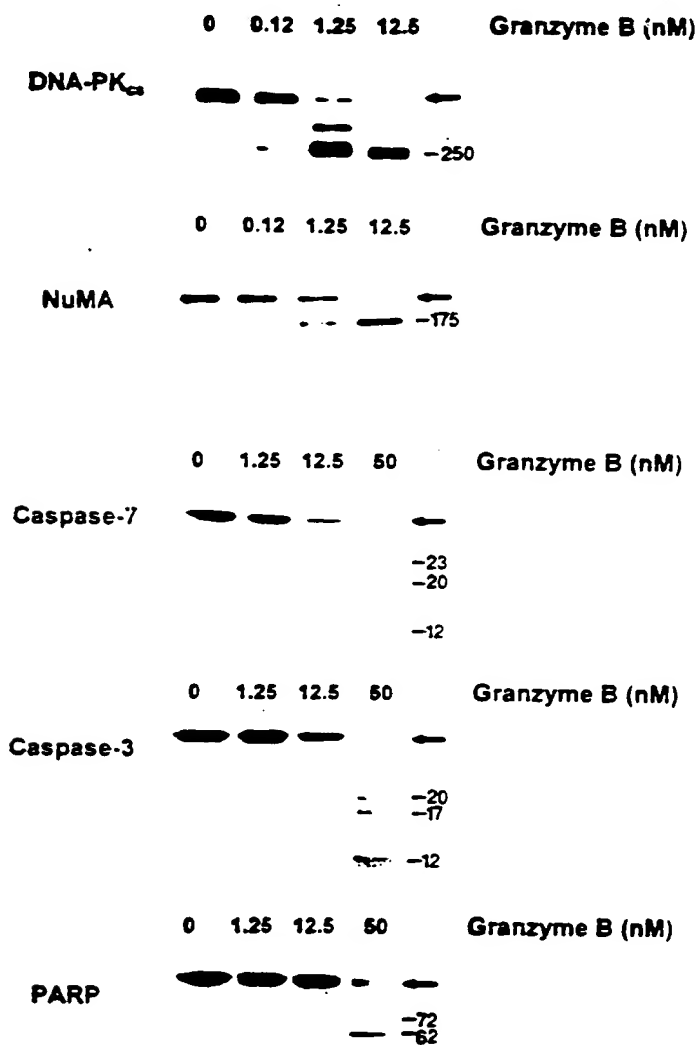


FIG. 1

Fig 1

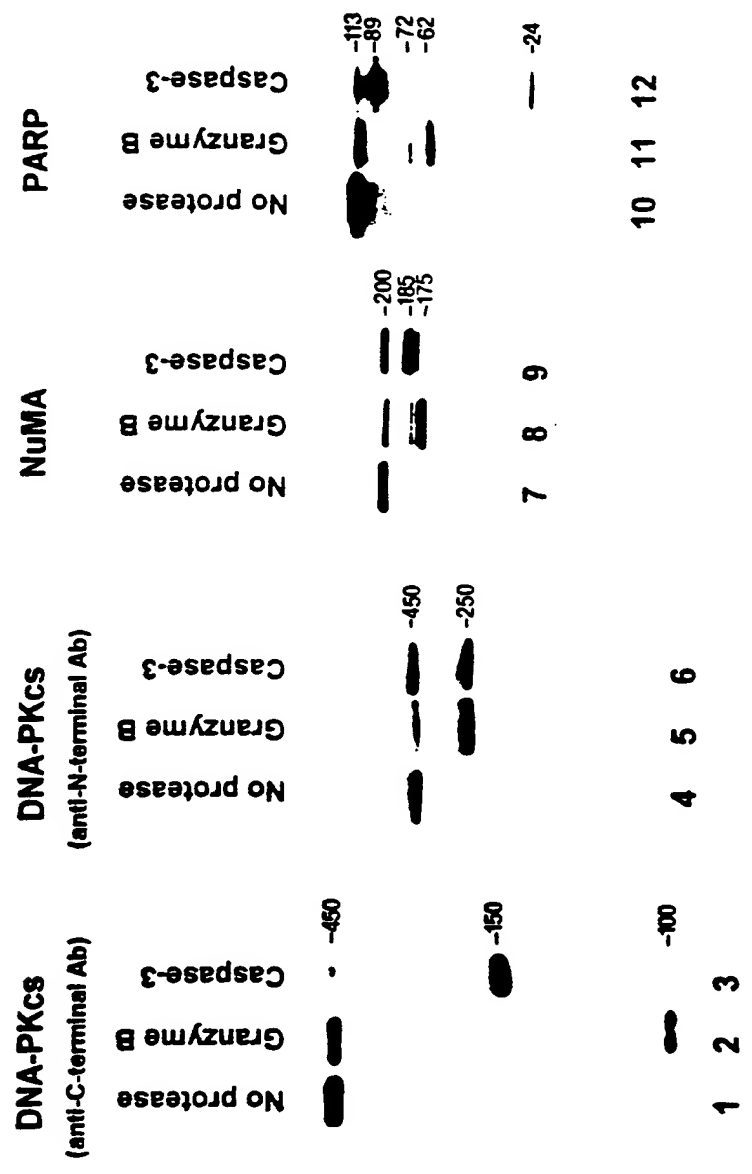


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66240 "2936260

Jim Ryd
bM-3362
Rosen

FIG. 2
Fig 2



20221Y

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662640" 29936250

FIG. 3

DNA	+	-	+	-	+
Granzyme B	-	-	+	+	-
DNA-PK_{cs}	+	+	+	+	-

SP1 —



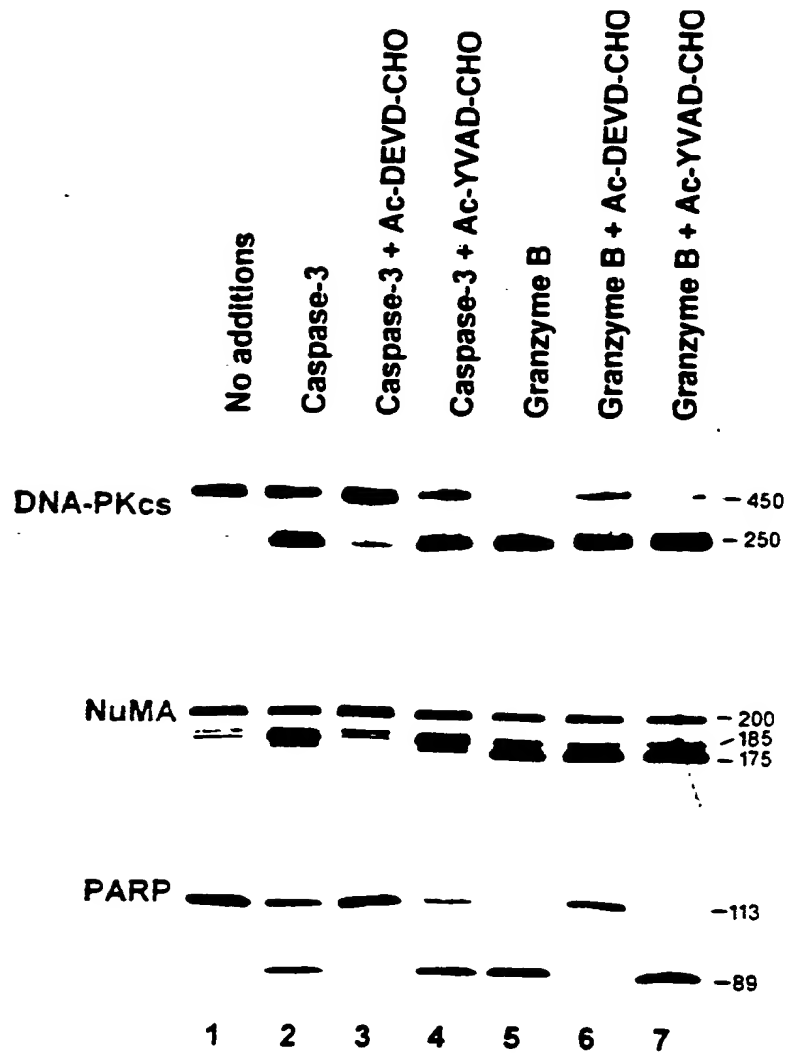
Unincorporated —
γ ³²P-ATP



1 2 3 4 5

Fig 3

FIG. 4



4

202214

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FIG. 5

Fig 5

AR copies

Figures

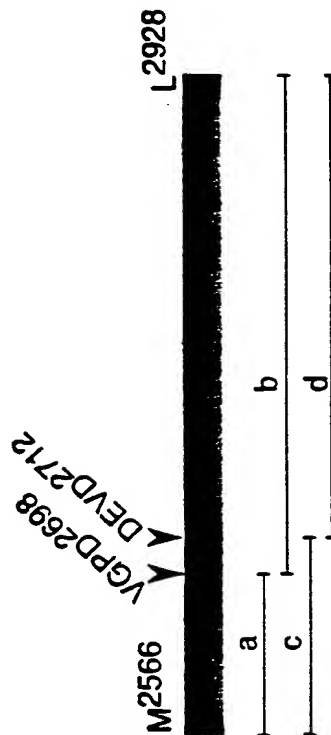


Fig. 6

Ca ²⁺	+	-	+	+
EDTA	-	+	-	-
Ac-DEVD-CHO	-	-	-	+
Granule Contents	-	+	+	+
	-	-	-	-
				-450

DNA-PKcs

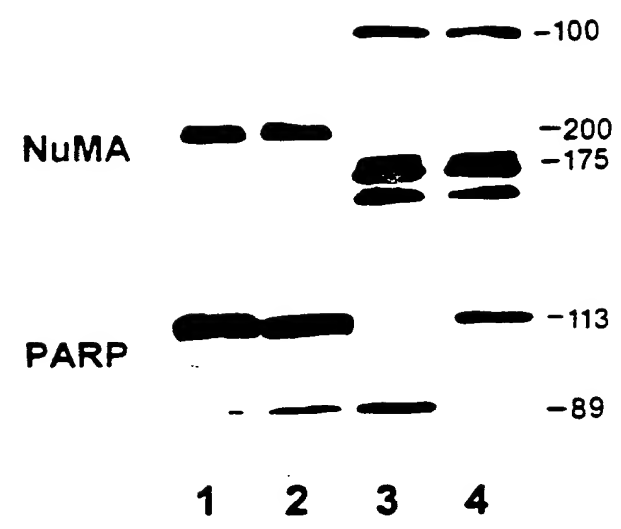


FIG. 7

LAK	+	-	+	+
K562	-	+	+	+
DEVD	-	-	-	+

— intact

DNA-PK_{cs}

— 150kDa

— 100kDa

— intact

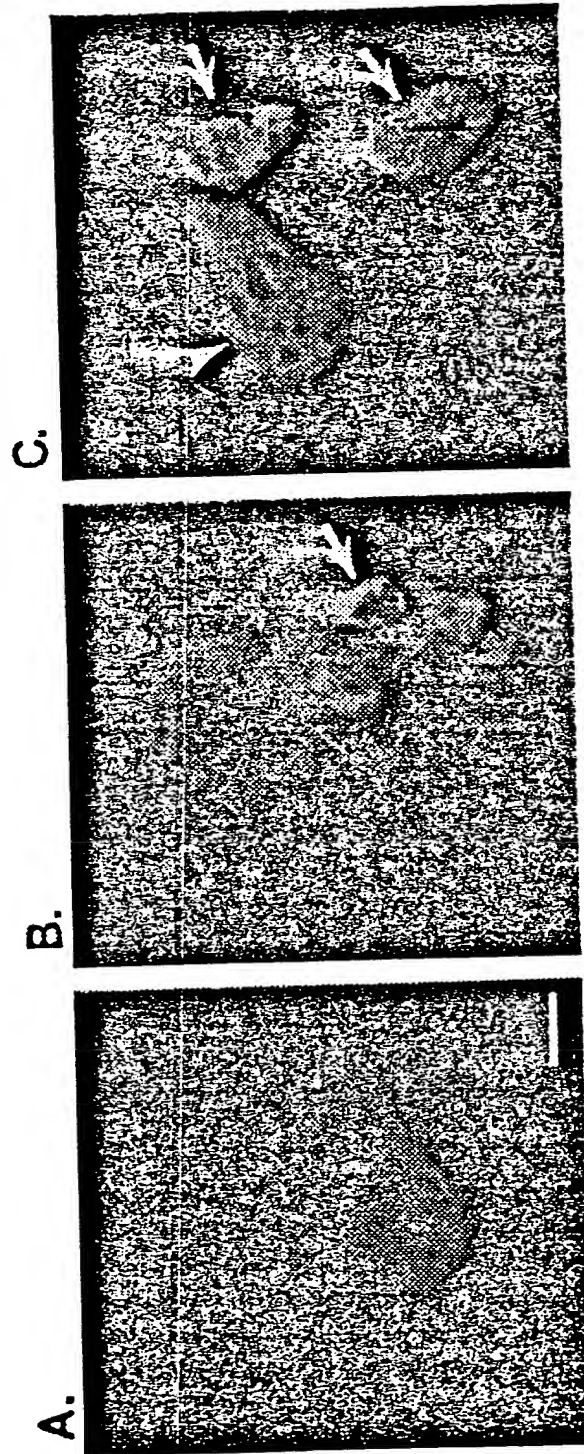
PARP

— 89kDa

1 2 3 4

662210 2993660

FIGURE 8



662240" 29996260

FIG. 9A

LOCUS 284337 2101 aa 12-APR-1996
 DEFINITION NuMA protein - human.
 ACCESSION 284337
 PID g284337
 DBSOURCE PIR: locus A42184
 summary: #length 2101 #molecular-weight 236296 #checksum 8715.
 PIR dates: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change
 12-Apr-1996.

KEYWORDS

SOURCE human.

ORGANISM Homo sapiens

Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
 Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
 Homo.

REFERENCE 1 (residues 1 to 2101)

AUTHORS Compton,D.A., Szilak,I. and Cleveland,D.W.

TITLE Primary structure of NuMA, an intranuclear protein that defines a
 novel pathway for segregation of proteins at mitosis

JOURNAL J. Cell Biol. 116 (6), 1395-1408 (1992)

MEDLINE 92176238

REFERENCE 2 (residues 1 to 2101)

AUTHORS Tang,T.K., Tang,C.J., Chen,Y.L. and Wu,C.W.

TITLE Nuclear proteins of the bovine esophageal epithelium. II. The NuMA
 gene gives rise to multiple mRNAs and gene products reactive with
 monoclonal antibody W1

JOURNAL J. Cell. Sci. 104 (Pt 2), 249-260 (1993)

MEDLINE 93280231

REFERENCE 3 (residues 1 to 2101)

AUTHORS Harborth,J., Weber,K. and Osborn,M.

TITLE Epitope mapping and direct visualization of the parallel,
 in-register arrangement of the double-stranded coiled-coil in the
 NuMA protein

JOURNAL EMBO J. 14 (11), 2447-2460 (1995)

MEDLINE 95300777

FEATURES Location/Qualifiers

source 1..2101
 /organism="Homo sapiens"
 /db_xref="taxon:9606"
 Protein 1..2101
 /product="NuMA protein"

662217 " 23936260

1. The first part of the document is a list of names and their corresponding dates. The names are: "John Doe", "Jane Smith", "Bob Johnson", "Alice Brown", "Charlie White", "David Green", "Eve Black", "Frank Gray", "Grace Hall", "Henry King", "Ivy Lee", "Jack Miller", "Karen Wilson", "Leo Young", "Mia Fox", "Noah Hill", "Olivia Scott", "Peter Adams", "Quinn Baker", "Samuel Carter", "Tina Evans", "Uma Friedman", "Victor Garcia", "Wendy Harris", "Xavier Jenkins", "Yara Khan", "Zoe Lewis". The dates are: "1990-01-01", "1990-02-01", "1990-03-01", "1990-04-01", "1990-05-01", "1990-06-01", "1990-07-01", "1990-08-01", "1990-09-01", "1990-10-01", "1990-11-01", "1990-12-01", "1991-01-01", "1991-02-01", "1991-03-01", "1991-04-01", "1991-05-01", "1991-06-01", "1991-07-01", "1991-08-01", "1991-09-01", "1991-10-01", "1991-11-01", "1991-12-01", "1992-01-01", "1992-02-01", "1992-03-01", "1992-04-01", "1992-05-01", "1992-06-01", "1992-07-01", "1992-08-01", "1992-09-01", "1992-10-01", "1992-11-01", "1992-12-01".

1	mtlhatrgaa	llswvnslhv	adpveavlql	qdcisfikii	drihgteegq	qilkqpvser
61	ldfvcslgk	nrkhpsspc	lvsaqkvlg	selelakmtm	llyhstmss	ksprdwefqe
121	ykigaelavi	lkfvlhdhgd	lnlnedlenf	lqkapvpstc	sstfpeelsp	pshgakreir
181	flqlgkvass	ssgnnflsgs	paspmgdilg	tpqfqmrrlk	kqladersnr	delelelaen
241	rklktekdaq	iammggridr	lallnekqaa	splepkelee	lrdknesltm	rlhetlkgcq
301	dlkteksqmd	rkinqlseen	gdlsfklref	ashlqqlqda	lnelteehtk	atgewlekqa
361	glekelsaal	qdkkkcleekn	eilqgklsql	eehlsqlqdn	ppqekgevlq	dvlqlletlkq
421	eaatlaannt	qlgarvemle	terggqeakl	laerghfeee	kqqlsslitd	lqssisnlsq
481	akeeleggag	ahgarltaqv	asltseittl	natiqqqdqe	laglkqqake	kqaqlaqtlg
541	qgegagqglr	hqveqlsssl	kqkeggklev	aekqeatrqd	haqqataaa	ereaslrrer
601	aalkgleale	kekaakleil	qqqlgvanea	rdsaqtsvtq	agreqaelrs	kveelqacve
661	tarqeghaeq	aqvaelelql	rseggkatek	ervagekdql	geqlqalkes	lkvtkgslee
721	ekrraadale	eqgrciselk	aetrslveqh	krerkeleee	ragrkglear	llqlgeahga
781	etevlrrela	eamaaghtae	seceqlvkev	aawrdgyeds	qqeeaqygam	fgeqlmtlke
841	ecekargelq	eakekvagie	shselqisrq	qnklaelhan	laralqqvqe	kevraqklad
901	dlstlqekma	atskevarle	tlvrkageeq	etasrelvke	paragdrqpe	wleeqqgrqf
961	cstqaalgam	ereaeqmgne	lerlraalme	sqqqqgeerg	qgerevarlt	qergragadl
1021	alekaarael	emrlqnalne	qrvefatlqe	alahalteke	gkdqelaklr	gleaaqikel
1081	eelrqtvkql	keqlakkeke	hasgsgaqse	aagrtptgpp	klealraevs	klegqqcqkq
1141	eqadslersl	eaerasraer	dsaletlqqg	leekaqelgh	sqsalasaqr	elaaftrtkvq
1201	dhskaedewk	aqvargrqa	erknslissl	eeevsilnrq	vlekegeske	lkrlymaese
1261	ksqkleesca	ccrqrgpatv	pelqnaallc	grrcrasgre	aekqrvasen	lrqeltsqae
1321	raeelqgskl	awqekffqke	qalstlgleh	tstqalvsel	lpakhlcqql	qaegaaaekr
1381	hreelegskq	aagglraeell	raqrelgeli	plrgkvaege	rtaqqlraek	asyaeqlsml
1441	kkahgllaee	nrglgeranl	grqfleveld	qarekyvqel	aavradaetr	laevqreags
1501	tarelevmta	kyegakvkvl	eerqrffqeer	qkltaqveel	skkladsdqa	skvqqqklka
1561	vqaggggesqg	eaqrffqaqln	elqaqlsqke	qaaehyklqm	ekakthydak	kqqngelqeg
1621	lrsleqlqke	nkelraeaer	lghelqqagl	ktkeaegtcr	hltaqvrsle	aqvahadqql
1681	rdlgkfqvaf	dalksrepqa	kpqldlsids	ldlsceegtp	lsitsklprt	qpdgtsvpge
1741	paspisqrlp	pkveslesly	ftpiparsqa	plessldslg	dvfldsgrkt	rsarrttqi
1801	initmtkkld	veepdsanss	fystrsapas	qaslratsst	qslarlgsdp	ygnsallslp
1861	gyrpttrssa	rrsqagvssg	appgrnsfym	gtcqdepeql	ddwnriaelq	qnrnrvcpchl
1921	ktcyplesrp	slslgtitde	emktgdpqet	lrrasmqpiq	iaegtgittr	qqrkrvslep
1981	hggpgtpesk	katscfprpm	tprdrhegrk	qstteaqqka	apastkqadr	rqsmafsiln
2041	tpkklgnsl	rrgaskkals	kaspntsrsgt	rrspriattt	asaataaaaig	atprakgkak
2101	h					

202214

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FIG. 10A

LOCUS 107227 2115 aa10-NOV-1995
DEFINITION NuMA protein - human.
ACCESSION 107227
PID g107227
DBSOURCE PIR: locus S23647
summary: #length 2115 #molecular-weight 238273 #checksum 4391.
PIR dates: 19-Feb-1994 #sequence_revision 10-Nov-1995 #text_change
10-Nov-1995.
KEYWORDS .
SOURCEhuman.
ORGANISM Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
Homo.
REFERENCE 1 (residues 1 to 2115)
AUTHORS Yang,C.H., Lambie,E.J. and Snyder,M.
TITLE NuMA: an unusually long coiled-coil related protein in the
mammalian nucleus
JOURNAL J. Cell Biol. 116 (6), 1303-1317 (1992)
MEDLINE 92176231
FEATURES Location/Qualifiers
source 1..2115
/organism="Homo sapiens"
/db_xref="taxon:9606"
Protein 1..2115
/product="NuMA protein"

"29996260" 222214

[illegible]

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61	ldfvcslgk	nrkhpsspec	lvsagkvleg	selelakmtm	lllyhstmss	ksprdweqfe
121	ykiqaelavi	lkfvldhedg	lnlnedlenf	lqkapvpstc	sstfpeelsp	pshqakreir
181	fllelqkvass	ssgnnflsgs	paspmgdilq	tpqfqmrrlk	kqladersnr	delelelaen
241	rklktekdaq	iammqgridr	lallnekqaa	splepkelee	lrdknesltm	rlhetlkqcq
301	dlkteksqmd	rkinglseen	gdlsfklref	ashlqqldda	lnelteehsk	atqewlekqa
361	qlekelsaal	qdkkcleeqn	eilqgklsq	eehlsqldqn	ppqekgevlq	dvlqletlkq
421	eaatlaannt	qlgarvemle	terggqeakl	laerghfeee	kqqlsslitd	lqssisnlsq
481	akeeeleqasq	ahgarltaqv	asltseittl	natiqqqdqe	laglkqqake	kqaqlagtq
541	qgeqasqglr	hqveqlsssl	kqkeqqlkev	aekqeatrqd	haqqlataae	ereaslrrerd
601	aalkqgleale	kekaakleil	qqqlqvanea	rdsaqtsvtq	agreakaelr	kveelqacve
661	tarqeqheaq	aqvaelelql	rseqqkatek	ervagekdql	qeqlqalkes	lkvtkgslee
721	ekrraadale	eqgrciselk	aetrslvegh	krerkeleee	ragrkglear	lqqlgeahqa
781	etevlrrela	eamaaqhtae	seceqlvkev	aawreryeds	qgeeaqygam	fqeqlmtlke
841	ecekargelq	eakekvagie	shselqisrq	qnelaelhan	laralqqvqe	klewaqklad
901	dlstlqekma	atskevarle	tlvrkageqq	etasrelvke	paragdrppe	veeqqgrqf
961	cstqaalgam	ereaeqmgn	lerlraalme	sqqqqqgeerg	qgerevarlt	gergragadl
1021	alekaarael	emrlqnalne	grvefatlqe	alahalteke	gkdqelaklr	gleaaqikel
1081	eelrqtvkql	keqlakkeke	hasgsgaqse	aagrtptgp	klealraevs	kleggcqkqq
1141	eqadslersl	eaerasraer	dsaletlqqg	leekaqelgh	sgsalasagr	elaaftrtkvq
1201	dhskaedewk	aqvargrqa	erknslissl	eeevsilnrq	vlekegeske	lkrlvmaese
1261	ksqkleerlr	llqaetasns	araaerssal	reevqslree	aekgrvasen	lrqeltsqae
1321	raeelgqelk	awgekffqke	qalstlqlqh	tstqalvsel	lpakhlcqql	qaeqaaaekr
1381	hreelegskq	aagglraell	raqrelgeli	plrqqvaeqe	rtaqqllraek	asyaeqlsml
1441	kkahgllaee	nrglgeranl	grqfleveld	qarekyvqel	aavradaetr	laevqreags
1501	tarelevmta	kyegakvkvl	eergrfgeer	qkltaqveql	evfqregtkq	veelskklad
1561	sdqaskvqqq	klkavqaqgg	esqgeaqrll	aqlnelqaql	sqkeqaaehy	klqmekakth
1621	ydakkqgnqe	lqeqlrsleq	lqkenkelra	eaerlghelq	qaglktkeae	qtrhltaqv
1681	rsleaqvaha	dqqlrdlgkf	qvattalksr	epgakpqldl	sidsldlsce	egtplsitsk
1741	lprrtpdgt	vpgepaspis	qrlppkvesl	eslyftpipa	rsqaplessl	dslgdvfgds
1801	grktrsarr	ttqiinitmt	kkldveepds	anssfystrs	apasqasla	tsstqslarl
1861	gspdygnsal	lslpgyrptt	rssarrsqag	vssgappgrn	sfgmgtcqde	peqlddwnri
1921	aelqqrnrvc	pplhktcyp	esrpslsigt	itdeemktgd	pgetlrrasm	qpqiiaegtq
1981	itrrqqrkrv	slephqpggt	peskkatscf	prpmtprdrh	egrkqsttea	qkkaapastk
2041	qadrrqsmaf	silntpkklg	nsllrrgask	kalskaspnt	rsgtrrspr	atttasaata
2101	aaigatprak	qkakh				

FIG. 11A

LOCUS 1362789 4096 aa 06-SEP-1996
DEFINITION DNA-activated protein kinase, catalytic subunit - human.
ACCESSION 1362789
PID g1362789
DBSOURCE PIR: locus A57099
summary: #length 4096 #molecular-weight 465420 #checksum 1795.
genetic: #gene GDB:PRKDC ##cross-references GDB:234702
#map_position 8q11.
PIR dates: 27-Oct-1995 #sequence_revision 27-Oct-1995 #text_change
06-Sep-1996.
KEYWORDS DNA binding; DNA recombination; DNA repair; nucleus;
phosphotransferase.
SOURCE human.
ORGANISM Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
Homo.
REFERENCE 1 (residues 1 to 4096)
AUTHORS Sipley,J.D., Menninger,J.C., Hartley,K.O., Ward,D.C., Jackson,S.P.
and Anderson,C.W.
TITLE Gene for the catalytic subunit of the human DNA-activated protein
kinase maps to the site of the XRCC7 gene on chromosome 8
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 92 (16), 7515-7519 (1995)
MEDLINE 95365397
REFERENCE 2 (residues 1 to 4096)
AUTHORS Hartley,K.O., Gell,D., Smith,G.C., Zhang,H., Divecha,N.,
Connelly,M.A., Admon,A., Lees-Miller,S.P., Anderson,C.W. and
Jackson,S.P.
TITLE DNA-dependent protein kinase catalytic subunit: a relative of
phosphatidylinositol 3-kinase and the ataxia telangiectasia gene
product
JOURNAL Cell 82 (5), 849-856 (1995)
MEDLINE 95401275
FEATURES Location/Qualifiers
source 1..4096
/organism="Homo sapiens"
/db_xref="taxon:9606"
Protein 1..4096
/note="DNA-PK-cs"
/product="DNA-activated protein kinase, catalytic subunit"

652217 "29936200

FIG. 11B

1 magsgagvrc sllrlqetls aadrcgaala ghqlirglgq ecvlssspav lalqtslvfs
 61 rdfglllvfr kslnsiefre creeilkflc iflekmgqki apysveiknt ctsvytkdra
 121 akckipaldl likllqtfrs srlmdefkig elfskfygel alkkkipdtv lekvyellgl
 181 lgevhpsemi nnaenlfrac lgelktqmts avrepklpvl agclkgllss lcnftksmee
 241 dpqtsreifr fvlkairpqi dlkryavpsa glrlfalhas qfstclldny vslfeflikw
 301 cahtnvelkk aalsalesfl kqvsnmvakn aemhknklgy emegfygiir nvdsnnkels
 361 iairgyglfa gpckvinakd vdfmyveliq rckqmfltqt dtgdyrvyqm psflqsvasv
 421 llyldtvpev ytpvlehlv mqidsfpgys pkmqlvccra ivkvflalaa kgpvlrncis
 481 tvvhqgliri cskpvvlpkg pesesedhra sgevrtgkwk vptykdyvdl frhlssdqm
 541 mdsiladeaf fsvnsssesl nhlllydefvk svlkivekld ltletgtvge qengdeapgv
 601 wmiptsdpaa nlhpakpkdf safinlvefc reilpekqae ffepwvysfs yelilqstrl
 661 plisgykll sitvrnakki kyfegvspks lkhspedpek yscfalvfkf gkevavkmkq
 721 ykdellasc1 tflslphni ieldvrayvp alqmafklgl sytplaevgl naleewsiyi
 781 drhvmgpyyk dilpcldgyl ktsalsdetk nnwevsalsr aaqkgfnkvv lkhllkktknl
 841 ssneaislee irirvvqmlg slggqinknl lvtvssdemmm ksyvawdrek rlsfavpfre
 901 mkpvifldvf lprvtelalt asdrqtkvaa cellhsmvmf mlgkatqmpc ggggappmyq
 961 lykrtfpvll rladvdvqvt rglyeplvmq lihwtfnkk fesqdtvsl1 eaildgivdp
 1021 vdstlrdfcg rcireflkws ikqitpqqge kspvntkslf krlyslalhp nafkrlgasl
 1081 afnniyrefr eeelveqfv fealviymes lalahadeks lgtiqgccda idhlcriiek
 1141 khvslnkakk rrlprgfpps aslclldlvk wllahcgrpq tecrhksiel fykfvpllpq
 1201 nrspnlwlkd vlkeegvsfl intfegggcg qpsgilagpt llylrgpfsl qatlclwldll
 1261 laalecyntf igertvgalg vlgtcaqssl lkavaffles iamhdiiaae kcfgtgaagn
 1321 rtspqegery nyskctvvvr imefttlln tipegwkllk kdlcnthlmr vlvqtlcepa
 1381 sigfnigdvq vmahlpdvcv nlmkalkmsp ykdilethlr ekitagsiee lcavnlygpd
 1441 aqvdrsr1aa vvsackqlhr agllhnlps qstdlhhs1g tellslvykg iapgderqcl
 1501 psldlscqql asgllelafa fggclcerlvs lllnpavlst aslgssqgsv ihfshgeyfy
 1561 slfsetinte llknldlav1 elmqssvdnt kmvsavlngm ldqsfreran qkhgglklat
 1621 tilqhwkkcd swwakdsple tknavlalla kilqidssvs fntshgsfpe vfttyislla
 1681 dtkldlhlkg qavtllpfft sltggsleel rrvleqliva hfpmqsrerp pgtprfnnyv
 1741 dcmkkfldal elsqspmlle lmtevlcreq qhvmeelfqs sfrriarrgs cvtqvglles
 1801 vyemfrkddp rlsftrqsfv drsl1tllwh csldalreff stivvdaidv lksrftklne
 1861 stf1dtqitkk mgyykildvm ysrlpkddvh akeskinqv1 hgscitegne ltktlklcy
 1921 daftenmage nql1errrly hcaayncas1 v1ccvfnelk fyqgflfsek peknllifen
 1981 lidlkrrynf pvevevpmer kkyieirke areaangdsd gpsymsslsy ladstlseem
 2041 sqfdfstgvq sysyssqdpr patgrfrrre qrdptvhddv lelemdelnr hecmapltal
 2101 vkhmhrslgp pqgeeds1pr dlpswmkflh gklgnpivpl nirlflaklv inteevfrpy
 2161 akhwlspl1q laasenngge gihymvveiv atilswtgla tptgvpkdev lanrllnflm
 2221 khvfhpkrav frhnleikt lvecwkdcls ipyrlife1k sgkdpnskd1n svgiqllg1v
 2281 mandlppydp qcg1qsseyf galvnmmsfv rykevya1aa evlgil1ryv merknilees
 2341 lcelvakqlk qh1qntmedkf ivclnkvtks fppladr1mn avffllpkfh gvlktlclev
 2401 vlcrveg1te lyfqlkskdf vqvmrhrder qkvcl1diyk mmpklkpvel rellnpvvef
 2461 vshpsttcre qmynilmwih dnyrdpeset dndsqeifk1 akdvliqgli denpglqlii
 2521 rnfws1hetrl psntldr1la lnslyspkie vhf1slatnf llemtsmspd ypnpmfehpl
 2581 secefgeyti dsdwrfrst1v ltpmfvetqa sqgtlqtrtq egslsarwpv agqiratqqq
 2641 h1dftltqtad grssfdwltg sst1dplvdht spssds1lfa hkrserlqra plksvgp1dfg
 2701 kkr1glpgde vdnkvkgaag rtdllrlrrr fmr1dqekls1 myarkgvaeg krekeiksel

FIG. 11C

2761	kmkqdaqvwl	yrsyrhgdlp	diqikhssli	tplqavaqrd	piaakqlfss	lfsgilkemd
2821	kfkrtlseknn	itqkllqdfn	rflnttfsff	ppfvsciqdi	scqhaallsl	dpaavsagcl
2881	aslqqpvgir	lleallrl	paelpakrvr	gkarlppdvl	rwvelaklyr	sigeydvlg
2941	iftseigtkq	itqsallaea	rsdyseaakq	ydealnkqdw	vdgepteak	dfwelaslde
3001	ynhlaewksl	eycstasids	enppdlnkiw	sepfyqetyl	pymirsklkl	llqgeadqsl
3061	ltfidkamhg	elqkailelh	ysgelsllyl	lqddvdraky	yiqnigiqsfm	qnyssidvll
3121	hqsrltklqs	vqalteiqef	isfiskqgnl	ssqvplkrll	ntwttnrypda	kmdpmniwdd
3181	iiitnrcffls	kieekltplp	ednsmnvdqd	gdpsdrmevq	eqeedissli	rsckfsmkmk
3241	midsarkqnn	fslamklke	lhkesktrdd	wlvswvqsy	rlshcrsrsq	gcseqvltvl
3301	ktvslldenn	vssylxknll	afrdqnillg	ttyriianal	ssepaclaei	eedkarrile
3361	lsgsssedse	kviaglyqra	fghlseavqa	aeeeeagppsw	scgpaagvid	aymtladfcd
3421	qqlrkeeena	svtdsaqla	ypalvvekml	kalklnsnea	rlkfprllqi	ierypeetls
3481	lmtkeissvp	cwqfiswish	mvalldkdqa	vavqhsveei	tdnypqaivy	pfiissesy
3541	fkdtstghkn	kefvärisk	ldgggviqdf	inaldqlsnp	ellfkdwnd	vraelaktpv
3601	nkkniekmye	rmyaalgdpk	apglgafrrk	fiqtfgkefd	khfgkggskl	lrmklstdfnd
3661	itnmlllkmn	kdsppgnlk	ecspwmsdfk	veflrnelei	pggydgrgkp	lpeyhvriag
3721	fdervtvmas	lrrpkriiir	ghderehpfl	vkgedlrd	qrveqlfqvm	ngilaqdsac
3781	sqrqlrlrty	svvpmtssdp	rappceykdw	ltkmsgkhdv	gaymlmykga	nrtetvtser
3841	kreskvpadl	lkrafvrmst	speaflalrs	hfasshalic	ishwilgigd	rhlennfmvam
3901	etggvigidf	ghafgsatqf	lpvpelmpfr	ltrqfinlml	pmketglmys	imvhalrafr
3961	sdpgllntnm	dvfvkepsfd	wknfeqkmlk	kggswiqein	vaeknwyrpq	kicyakrkla
4021	ganpavitcd	elllghekap	afrdyvavar	gskdhniraq	epesglseet	qvkcmdqat
4081	dpnilgrtwe	gwepwm				

662240 "29966660

FIG. 12A

LOCUS 130781 1014 aa 01-NOV-1997
 DEFINITION POLY (ADP-RIBOSE) POLYMERASE (PARP) (ADPRT)
 (NAD(+)
 ADP-RIBOSYLTRANSFERASE) (POLY(ADP-RIBOSE)
 SYNTHETASE).
 ACCESSION 130781
 PID g130781
 DBSOURCE SWISS-PROT: locus PPOL_HUMAN, accession P09874
 class: standard.
 created: Mar 1, 1989.
 sequence updated: Dec 1, 1992.
 annotation updated: Nov 1, 1997.
 xrefs: gi: 510112, gi: 1017423, gi: 190166, gi: 190167, gi: 337423,
 gi: 337424, gi: 178151, gi: 178152, gi: 190266, gi: 190267, gi:
 178188, gi: 178190, gi: 189533, gi: 189534, gi: 35286, gi: 825702,
 gi: 35288, gi: 189535, gi: 189536, gi: 88229, gi: 88227, gi:
 627553, gi: 107162, gi: 107160, gi: 482956, gi: 420073, gi: 107158
 xrefs (non-sequence databases): AARHUS/GHENT-2DPAGE 1620,
 MIM 173870, MIM 173871, PROSITE PS00347, PROSITE PS50064
 KEYWORDS TRANSFERASE; GLYCOSYLTRANSFERASE; NAD; DNA-
 BINDING; NUCLEAR
 PROTEIN; ADP-RIBOSYLATION; ZINC-FINGER; ZINC.
 SOURCE human.
 ORGANISM Homo sapiens
 Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
 Primates; Catarrhini; Hominidae; Homo.
 REFERENCE 1 (residues 1 to 1014)
 AUTHORS Auer,B., Nagl,U., Herzog,H., Schneider,R. and
 Schweiger,M.
 TITLE Human nuclear NAD+ ADP-ribosyltransferase(polymerizing):
 organization of the gene
 JOURNAL DNA 8 (8), 575-580 (1989)
 MEDLINE 90091744
 REMARK SEQUENCE FROM N.A.
 REFERENCE 2 (residues 1 to 1014)
 AUTHORS Uchida,K., Morita,T., Sato,T., Ogura,T., Yamashita,R.,
 Noguchi,S.,
 Suzuki,H., Nyunoya,H., Miwa,M. and Sugimura,T.
 TITLE Nucleotide sequence of a full-length cDNA for human fibroblast
 poly(ADP-ribose) polymerase
 JOURNAL Biochem. Biophys. Res. Commun. 148 (2), 617-622 (1987)
 MEDLINE 88076933
 REMARK SEQUENCE FROM N.A.
 TISSUE=FIBROBLAST

66240 " 23336260


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1 maessdklyr veyaksgras ckkcsesipk dslrmaimvq spmfdgkvph wyhfcscfwkv
61 ghsirhpdve vdgfseirwd dqqkvkktae aggvtdrgqgd gigskaekt1 gdfaaeyaks
121 nrstckgcme kiekqgvrls kkmvdpckpq lgmidrwyhp gcfvknreel gfrpeysasq
181 lkgfslate dkealkkqlp gvksegkrkg devdgvdeva kkskkekdk dsklekalka
241 qndliwnikd elkkvcstnd lkellifnkq qvpsgesail drvadgmvmfg allpceecsg
301 qlvfksdayy ctgdvtawtk cmvktqtprn kewvtpkefr eisylkklkv kkgdrifppe
361 tsasvaatpp pstasapaav nssasadkpl snmkiltlgk lsrnkdevka mieklggklt
421 gtankaslci stkkevekmn kkmeevkean irvvsedflq dvsastkslq elflahilsp
481 wgaevkaepv evvaprgksg aalskkskqg vkeeginkse krmkltlkgg aavdpdsgle
541 hsahvlekkg kvfsatlglv divkgtnsyy klqlleddke nrywifrswg rvgtvigsnk
601 legmpskeda iehfmklyee ktgnawhskn ftkypkkfyp leidyggdee avkkltvnpq
661 tksklpkpvq dlikmifdve smkkamveye idlqkmp1gk lskrqigaay silsevqqav
721 sgssdsqil dlsnrfytl1 phdfgmkkpp llnnadsvga kvemldnld ievaysllrg
781 gsddsskdpi dvnyeklkt d ikvdrdsee aeirkyvkn thatthnayd levidifkie
841 regecgrykp fkqlhnrrll whgsrttnfa gilsqglria ppeapvtgym fgkgyfadm
901 vsksanycht sqgdpiglil lgevalgnmy elkhashisk lpgkghsvkg lgkttpdpsa
961 nisldgvdvp lgtgissgvn dtsllyneyi vydiaqvn1k yllklkfnfk tslw

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